

Midterm :
 Chp. 2 \Rightarrow Trig
 Chp. 3 \Rightarrow Quadratics
 Chp. 4 \Rightarrow Quadratics II
 Chp. 5 \Rightarrow Radicals

Chp. 5 \Rightarrow finish 5.2 (conjugate pair)
 + 5.3 (equations)

Dividing Radicals using Conjugate Pairs

$$2 + \sqrt{3} \quad \Rightarrow \quad \overset{\text{conjugate}}{2 - \sqrt{3}}$$

$$-\sqrt{5} + 7 \quad \Rightarrow \quad -\sqrt{5} - 7$$

$$-\sqrt{5} - \sqrt{2} \quad \Rightarrow \quad -\sqrt{5} + \sqrt{2}$$

Multiply binomials with radicals

$$\begin{array}{c} (3 + \sqrt{2})(1 - \sqrt{5}) \\ \hline 3 - 3\sqrt{5} + \sqrt{2} - \sqrt{10} \end{array}$$

Multiply conjugates

$$\begin{array}{c} (2 - \sqrt{3})(2 + \sqrt{3}) \\ \hline 4 + 2\sqrt{3} - 2\sqrt{3} - 3 \\ = 4 - 3 \\ = 1 \end{array}$$

examples

$$\begin{aligned}
 1) \quad \frac{5\sqrt{3}}{4-\sqrt{6}} \cdot \frac{4+\sqrt{6}}{4+\sqrt{6}} &= \frac{20\sqrt{3} + 5\sqrt{18}}{16-6} \\
 &= \frac{20\sqrt{3} + 5(3\sqrt{2})}{10} \\
 &= \frac{20\sqrt{3} + 15\sqrt{2}}{10} \\
 &= \frac{4\sqrt{3} + 3\sqrt{2}}{2}
 \end{aligned}$$

$$2) \quad \frac{2}{3\sqrt{5}-4} \cdot \frac{3\sqrt{5}+4}{3\sqrt{5}+4}$$

$$\begin{aligned}
 &\frac{6\sqrt{5}+8}{9(5)-16} \\
 &= \frac{6\sqrt{5}+8}{29}
 \end{aligned}$$

$$3) \quad \frac{-2\sqrt{12}}{4\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$\begin{aligned}
 &\frac{-2\sqrt{36}}{4(3)} = \frac{-12}{12} = -1 \\
 \text{or} & \frac{-4\sqrt{3}}{4\sqrt{3}} = -1 \\
 \text{or} & \frac{-0.5\sqrt{4}}{-0.5(2)} = -1
 \end{aligned}$$

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#6 a, b

#8 a, b

#10